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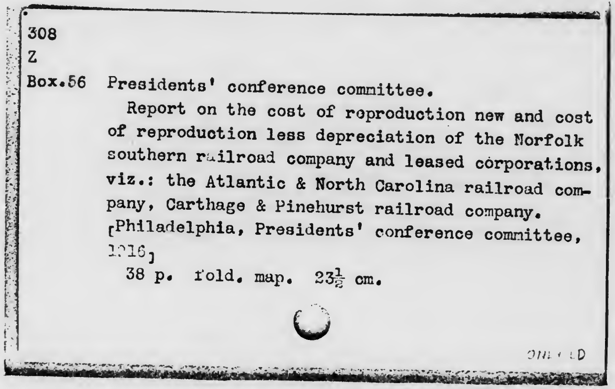

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Box.56 Presidents' conference committee.

Report on the cost of reproduction new and cost of reproduction less depreciation of the Norfolk southern railroad company and leased corporations, viz.: the Atlantic & North Carolina railroad company, Carthage & Pinehurst railroad company. [Philadelphia, Presidents' conference committee, 1916]

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REPORT ON

NORFOLK SOUTHERN RAILROAD
AND LEASED LINES

ATLANTIC & NORTH CAROLINA RAILROAD
CARTHAGE & PINEHURST RAILROAD

AS OF JUNE 30, 1914

ENGINEERING

OFFICE OF
GENERAL SECRETARY
PRESIDENTS' CONFERENCE COMMITTEE
PHILADELPHIA, PA.

REPORT ON THE
COST OF REPRODUCTION NEW AND
COST OF REPRODUCTION LESS DEPRECIATION

OF THE

NORFOLK SOUTHERN RAILROAD COMPANY

AND LEASED CORPORATIONS, VIZ.:

THE ATLANTIC & NORTH CAROLINA RAILROAD COMPANY

CARTHAGE & PINEHURST RAILROAD COMPANY

M B N June 22,'17

I. CORPORATE DATA AND DESCRIPTION.

In General.

The Norfolk Southern Railroad Company is a corporation of the State of Virginia, organized under the laws of the State May 2, 1910, and is a reorganization of the Norfolk & Southern Railway Company, the property and franchise of which was by deed conveyed to the Norfolk Southern Railroad Company May 3, 1910, under foreclosure proceedings, together with the Raleigh, Charlotte & Southern Railway Company which, with its affiliated lines, was purchased by the Norfolk Southern Railroad Company in 1912.

As now organized this carrier operates 901.8 miles of railroad, 788.6 miles of which are owned by the corporation, 107.8 miles are leased and 5.34 miles represent trackage rights over railroads owned by other companies. Included in the above mileage are 42.94 miles of electric railroad owned by the corporation. It also owns and operates some marine equipment in the harbor at Norfolk.

Of the entire operated property 12.68 per cent., or 114.36 miles, are in the State of Virginia, and 87.32 per cent., or 786.39 miles, in the State of North Carolina.

The Norfolk Southern Railroad Company operates the Atlantic & North Carolina Railroad, 95.9 miles, under lease dated 1904, given for a period of ninety-one years and four months, and, also, the Carthage & Pinehurst Railroad Company under the terms of an expired lease given by the Carthage & Pinehurst Railroad Company to the Aberdeen & Asheboro Railway Company for five years, dated October 1, 1907, having been taken over in 1912, with the Raleigh, Charlotte & Southern Railway Company.

Owned Properties of the Norfolk Southern Railroad Company.

The properties owned by the Norfolk Southern Railroad Company are shown in the following table:

Val. Sec.	From	To	Miles 1st Main Track	Miles 2d Main Track	Miles Sidings and Yard Tracks	Total Miles all Tracks
1	Electric Division	Electric Division	42.944	7.680	11.857	62.481
2.02	Norfolk	Tidewater Junction	1.818	1.520	2.382	5.720
2.04	Berkley	Va.–N. C. State Line	22.641		14.536	37.177
3.01	Euclid	Munden	22.365		1.967	24.332
3.02	Euclid	Providence Junction	7.548		0.805	8.353
4	Suffolk	Va.–N. C. State Line	13.428		3.651	17.079
Total in State of Virginia			110.744	9.200	35.198	155.142
5.00	Va.–N. C. State Line	Washington	109.887		28.675	138.562
6.01	Va.–N. C. State Line	Edenton	36.804		2.061	38.865
6.02	Beckford Junction	Elizabeth City	23.291		1.575	24.866
7.01	Mackeys	Columbia	23.011		1.700	24.711
7.02	Mackeys	Belhaven	29.454		5.174	34.628
7.03	Pinetown	Bishop	11.147		0.617	11.764
8.01	New Bern	Oriental	26.050		2.983	29.033
8.02	Chocowinity	Bridgeton	29.657		2.437	32.094
8.03	Morehead	Beaufort	3.235		0.581	3.816
10.00	Washington	Raleigh	106.108		22.262	128.370
11.00	Raleigh	Charlotte	156.752		24.723	181.475
12.00	Varina	Fayetteville	42.835		4.183	47.018
14.00	Aberdeen	Asheboro	57.665		9.122	66.787
14.04	Candor	Ellerbe	17.598		1.598	19.196
14.05	West End	Jackson Springs	4.332		0.178	4.510
Total in State of North Carolina			677.826		107.869	785.695
Total property owned			788.570	9.200	143.068	940.837

The entire road is single track, with the exception of 7.68 miles of the Electric Division and 1.52 miles of the steam line between Norfolk and Tidewater Junction, a total of 9.02 miles of second track. The main line extends from Norfolk, Va., to Charlotte, N. C., a distance of about 400 miles, with an additional main line from Chocowinity, N. C., to New Bern, N. C., a distance of thirty-one miles, an electric division from Norfolk to Virginia Beach and Virginia Beach to Norfolk, a distance of 42.9 miles, and with branches to Munden, Suffolk, Columbia, Belhaven, Oriental, Fayetteville, Asheboro, Aberdeen, Ellerbe and Jackson Springs, and branch lines between Euclid and Providence Junction, Elizabeth City and Beckford Junction, and Pinetown and Bishop's Cross.

Telegraph and Telephone Property.

The Norfolk Southern Railroad Company owns and operates 354 miles of pole line along its property and, in addition, 337.46 miles of wire on poles owned by the Western Union Telegraph Company. Telephone dispatching circuits are used over practically the entire system, the telegraph being used only for commercial business. The telegraph property owned and operated by the Norfolk Southern Railroad Company is shown in the following table:

From	To	Miles Pole Line Owned	Wire on Foreign Poles
Electric Division	Electric Division	29.67	
Berkley Wharf	N. C. State Line		22.11
Tidewater Junction	Carolina Junction	2.20	
Euclid	Munden	21.67	
Euclid	Providence Junction	7.55	
Suffolk	N. C. State Line		12.68
Total in State of Virginia		61.09	34.79
Virginia State Line	Mackeys		54.61
Mackeys	Washington	44.23	
N. C. State Line	Ryland		21.03
Ryland	Edenton	15.81	
Mackeys	Belhaven	29.81	
Chocowinity	New Bern	30.20	
Morehead City	Beaufort		2.65
Goldsboro	Morehead City		91.78
Washington	Chocowinity	3.92	
Chocowinity	Southern Railway Crossing, Raleigh	102.24	
Caraleigh Junction	Varina		14.30
Southern Railway Crossing, Raleigh	Troy	76.09	
Troy	Mt. Gilead		13.37
Mt. Gilead	Charlotte	51.70	
Varina	Fayetteville		41.40
Biscoe	Troy		7.90
Aberdeen	Asheboro		56.82
West End	Jackson Springs		4.00
Candor	Ellerbe		17.10
Pinehurst	Carthage		12.50
Total in State of North Carolina		354.00	337.46
Total telegraph and telephone property owned		415.09	373.25

HISTORY OF CONSTRUCTION.

The construction of the various properties comprising the Norfolk Southern Railroad Company includes the construction at different periods, extending from 1881 to approximately 1903, of a series of short railroads which were built principally to develop the timber regions of eastern Virginia and North Carolina. These short lines were gradually acquired by purchase and consolidated into two main corporations, namely, the Norfolk & Southern Railway Company and the Raleigh, Charlotte & Southern Railway Company, which, in turn, were purchased and consolidated with the Norfolk Southern Railroad Company in 1910. This consolidation left two gaps, one extending from Raleigh to Sylvaola, five miles, and one from Varina to Colon, a distance of twenty-two miles. These two gaps were closed in 1913 and a further extension from Mt. Gilead westward to Charlotte, a distance of fifty-three miles, constructed during the same year, traffic being opened January, 1914.

GENERAL DESCRIPTION.

That part of the main line extending from Norfolk, Va., to Chocowinity, N. C., lies in the flat coastal plain of the Atlantic seaboard where all of the larger streams crossed by the line are tidal estuaries and where the question of maximum grade had little or no consideration in the location of the line. The controlling factors in its location seem to have been to reach the trading points by the shortest and most direct line that would avoid, as much as possible, low, swampy ground.

The territory traversed by this line has been, and still is, a large lumber producer. Truck farming, together with tobacco and cotton, is the chief industry along the entire line, the truck farming section lying principally between Norfolk and Elizabeth City. From Plymouth to Pinetown the soil is poor and the country rather barren. The remainder of the territory produces good crops of cotton, corn, sweet potatoes and forage.

From Edenton to Mackeys Ferry, a ferry, or freight transfer, was operated for a number of years, but about 1908 these points were connected by a pile trestle bridge 5.15 miles long across Albemarle Sound, extending from Skinner's Point to Mackeys.

From Chocowinity to Wilson, N. C., approximately fifty-four miles, the country traversed is generally low and flat, the character being similar to that found between Norfolk and Chocowinity. At Wilson the country changes to a rolling character, and from this point to Charlotte the construction necessitated a very considerable amount of cuts and fill. The cuts are generally of a heavy calico clay, in many places approaching hard-pan, with considerable solid rock classification.

This line reaches the important cotton and tobacco regions of North Carolina, the most important shipping points being Greenville and Charlotte.

The Electric Division, extending from Norfolk to Cape Henry and from Cape Henry to Virginia Beach, is through a comparatively flat country where the soil is of a light, sandy loam, running to the white sand dunes leading along the immediate east coast of northern Virginia. The southern line, extending from Norfolk to Virginia Beach, passes through a more swampy region, where the character of the country required more extensive construction. The western portion of both of these lines is given up to truck farming, agricultural products finding a ready market in Norfolk. The main business of this line is the summer passenger traffic to the Virginia Beach and Cape Henry resorts.

Alignment and grades are very easy, there being few curves and a maximum grade of one-half of one per cent.

The usual summer schedule on this line is fourteen daily trains of one or two cars each, with four additional trains on Sunday.

The branch lines along the eastern coast of Virginia and North Carolina were generally built to accommodate the lumber industry and traverse a low, wet country, where initial cost of construction was rather high on account of such wet condition.

The topographical characteristics along some of these lines are practically the same as when the road was built. This is particularly true of the line extending from Beckford Junction to Elizabeth City, this line passing through what is known as the "Dismal Swamp."

Along many of these branches drainage ditches are being dug and the country is rapidly developing into a truck farming and cotton-growing section, although a large amount of timber is still available.

The only branches extending from the main line between Chocowinity and Charlotte are the Fayetteville Branch and the branches leading to Aberdeen and Asheboro. The first named reaches the important Cape Fear section of the country, with its terminus at Fayetteville, which is the largest inland cotton market on the State of North Carolina. This branch traverses an excellent agricultural section, where agricultural products, including tobacco and cotton, are abundant. The Aberdeen and Asheboro Branches are located along the top of a low ridge, where the soil has very little fertility, and the business is largely such as originates at the above two terminals.

Taken as a whole, the Norfolk Southern Railroad forms one of the main arteries whereby the products from the great cotton and tobacco belts of North Carolina reach the markets of the world, its northern terminus, Norfolk, being the most important seaport on the Atlantic coast south of New York, Philadelphia and Baltimore.

The average annual rainfall for the coastal plain of Virginia is 47.11 inches, for the entire eastern section of North Carolina, extending as far west as Raleigh, 55.6 inches and for the western portion of North Carolina, including the section between Raleigh and Charlotte, 52 inches.

The original construction of the roads forming the main line prior to its reorganization was generally in accord with the standards prevailing for light traffic roads built between the periods 1880 to 1900, and the branch lines generally of a rather low standard, many of them being merely lumber roads originally constructed for the purpose of getting timber out of the main line.

Since its reorganization by the Norfolk Southern Railroad Company the standard of the road has been very materially improved, the weight of rail in many sections increased from fifty-six pounds to seventy pounds and, in a few places, to as high as eighty and ninety pounds. The roadbed, particularly along the main line, has been improved and sand ballast mixed with some gravel, cinders, and oyster shell, has taken the place of the dirt ballast originally used.

The maintenance of the roadbed is such as is usually encountered on light traffic roads of this character, the maintenance on the main line being considerably better than that on most of the branch lines.

On the older portions of the road the buildings generally are of a rather inferior type of the period in which they were built. On the portions recently constructed up to date passenger stations and other buildings, including shops, have been built, generally of brick. On the Electric Division, outside of the three passenger stations at Virginia Beach, Cape Henry and Lynn Haven, the stations are of the small shelter type of brick and wood.

Between Norfolk and Chocowinity most of the original pile trestles have been replaced by steel spans, the only material exceptions being the five-mile trestle across Albemarle Sound and the long trestle across the Tar River, at Washington.

Over the balance of the road bridges are generally pile trestle, with the exception of structures over important rivers, where steel spans have been introduced.

The main shops of the carrier are located at Berkley and New Bern, with branch shops at Raleigh and Charlotte. The buildings at Raleigh and Charlotte are up to date, but those at Berkeley are of an exceedingly antiquated type, built of wood, and are very poorly maintained. Those at New Bern, while the type and maintenance are considerably better than that at Berkley, cannot be classed as up to date.

The machinery in these shops is generally of a type manufactured some years ago, and very little of it can be classed as up to date product.

Density of Traffic.

The average daily train service over the main line is as follows:

Between Norfolk and Chocowinity, two passenger and two freight trains in each direction, with one additional passenger train in each direction between Norfolk and Edenton.

Between Chocowinity and Raleigh, three passenger and two freight trains in each direction.

Between Chocowinity and New Bern, three passenger and two freight trains in each direction.

Between Raleigh and Charlotte, one passenger train and one freight train in each direction, with an additional passenger train in each direction between Charlotte and Star, and two additional passenger trains in each direction between Raleigh and Varina.

The average daily train service over the branch lines is two passenger trains and one freight train in each direction.

Trackage Rights over Other Carriers.

In addition to the owned and leased property the Norfolk Southern Railroad Company, under trackage agreement, or other form of contract, uses the following:

Name of Owning Company	Miles of Road	Location	Remarks
Norfolk & Atlantic Terminal Co.	0.87	Norfolk, Va.	To reach business section with electric trains.
Norfolk Terminal Ry. Co.	0.36	Norfolk, Va.	To reach Terminal Station.
Virginian Railway Co.	2.30	Tidewater Junction to Carolina Junction	Cut-off.
Norfolk & Western Ry. Co.	0.09	Suffolk, Va.	To reach Union Station.
Southern Railway Co.	0.50	Goldsboro, N. C.	To reach Union Station.
Goldsboro Union Station Co.	0.40	Goldsboro, N. C.	Use of Union Station.
Southern Ry. and Seaboard Air Line Ry. Co.		Raleigh, N. C.	Use of Union Station.
Southern Railway Co.	0.34	Raleigh, N. C.	To reach Union Station.
Southern Railway Co.		Raleigh, N. C.	Yard facilities.
Southern Railway Co.		Gulf, N. C.	Yard facilities.
Atlantic Coast Line Railway Co.	0.48	Fayetteville, N. C.	To reach station.
Southern Railway Co.		Asheboro, N. C.	Yard facilities.

Connections with Other Carriers.

The Norfolk Southern Railroad Company has connections for the interchange of business with other carriers at the following points:

Location	Name of Other Carrier
Norfolk, Va.	The Virginian Ry.
Norfolk, Va.	Norfolk & Western Ry.
Norfolk, Va.	Atlantic Coast Line R. R.
Norfolk, Va.	Seaboard Air Line Ry.
Norfolk, Va.	Southern Ry.
Norfolk, Va.	Chesapeake & Ohio Ry.

Location	Name of Other Carrier
Norfolk, Va.	New York, Philadelphia & Norfolk R.R.
Suffolk, Va.	Norfolk & Western Ry.
Suffolk, Va.	Atlantic Coast Line R. R.
Suffolk, Va.	Seaboard Air Line Ry.
Suffolk, Va.	Southern Ry.
Suffolk, Va.	Virginian Ry.
Plymouth, N. C.	Atlantic Coast Line R. R.
Washington, N. C.	Atlantic Coast Line R. R.
Washington, N. C.	Washington & Vandemere R. R.
New Bern, N. C.	Atlantic Coast Line R. R.
New Bern, N. C.	Atlantic & North Carolina R. R.
Greenville, N. C.	Atlantic Coast Line R. R.
Farmville, N. C.	East Carolina Ry.
Wilson, N. C.	Atlantic Coast Line R. R.
Raleigh, N. C.	Southern Ry.
Raleigh, N. C.	Seaboard Air Line Ry.
Varina, N. C.	Durham & Southern Ry.
Fayetteville, N. C.	Atlantic Coast Line R. R.
Fayetteville, N. C.	Aberdeen & Rockfish R. R.
Lillington, N. C.	Atlantic & Western R. R.
Gulf, N. C.	Southern Ry.
Hallison, N. C.	Randolph & Cumberland R. R.
Norwood, N. C.	Winston-Salem Southbound Ry.
Norwood, N. C.	Southern Ry.
Charlotte, N. C.	Southern Ry.
Charlotte, N. C.	Seaboard Air Line Ry.
Pinehurst, N. C.	Carthage & Pinehurst R. R.

II. PROGRAM FOR REPRODUCTION.

General Plan.

The plan of reproduction contemplates a construction period of two years after completion of reconnoissance and location. The character of construction and the ready access to the property through other carriers makes it possible to carry on the work of construction simultaneously over practically the entire length of the carrier. The light work on many of the branches

makes it possible to defer starting work on those branches until the main line is available for delivery of materials. This makes it possible to somewhat lighten the interest charges. To make this plan available it is necessary to push the construction work at certain terminals, particularly at Norfolk, which will be the main delivery point for much of the material used, the availability of water facilities making that desirable. Therefore, the first work undertaken on this part of the carrier will be that of the construction of dockage facilities and the building of sufficient track to provide material yards.

General Offices.

The general office of the Norfolk Southern Railroad Company should be located at Norfolk, Va., with an organization consisting of President and General Manager, Secretary, Treasurer, General Counsel and Purchasing Agent, with necessary assistants and clerical force.

Engineering Organization.

The general engineering organization is assumed to consist of Chief Engineer and Engineer of Bridges and Buildings, with necessary office staff; the Mechanical Department to consist of Superintendent of Motive Power with necessary Assistant Engineers, Inspectors, and office force.

The plan of construction contemplates separating the work into three divisions, as follows:

Northern Division, extending from Norfolk to Chocowinity, including the Electric Division, Currituck, Kempsville, Suffolk, Columbia and Belhaven Branches, and the Beckford and Pinetown cut-offs.

Central Division, extending from the Cape Fear River east of Colon to New Bern, including the Fayetteville and Oriental Branches; also the section of road between Morehead City and Beaufort.

Western Division, extending from Charlotte to the Cape Fear River, including the Aberdeen and Asheboro, Ellerbe and Jackson Springs Branches.

Each of these divisions is to be placed in charge of a Division Engineer and divided into residences, averaging approximately fifteen miles each, the maximum number of residential parties in the field at one time being thirty-three.

Division headquarters would be located as follows:

Northern Division, Norfolk, Va.
Central Division, Raleigh, N. C.
Western Division, Charlotte, N. C.

Material Yards.

Material yards will be located at all important rail intersecting points. Water facilities at Norfolk will be utilized, not only for the delivery of material to be used over that portion of the line in the immediate vicinity of Norfolk, but also for transshipment over connecting carriers, running from that point to other points along the line of construction. These intersections are as follows:

Northern Division—Norfolk, Berkley, Skinner's Point, Suffolk, Plymouth, Washington.

Central Division—New Bern, Morehead City, Greenville, Farmville, Wilson and Raleigh.

Western Division—Charlotte, Aberdeen, Asheboro, Norwood, Hallison, Colon and Star.

At these numerous storage points it is estimated that material can be delivered and moved over the Norfolk Southern tracks as they are laid, this to include culvert pipe and bridge materials, thus avoiding extensive haulage of such materials by wagon.

Source of Materials.

The principal materials used in the construction are obtained from the following sources:

Rail, for Northern and East Central Divisions—Sparrow's Point, Md.
Rail, Western and West Central Divisions—Steelton, Pa.
Track Spikes, Bolts, Tie Plates, etc.—Pittsburgh, Pa. (base).
Frogs, Switches, etc.—Steelton, Pa.
Switch Timber—From Southern points.
Cross-Ties—Bogue and Cedar Point, N. C.
Bridge Timber (Long Leaf Yellow Pine)—From Georgia points.

Building Materials—(Local).
Metal Bridges.—Pittsburgh, Pa. (base).
Cast-Iron Pipe—Roanoke, Va.
Wrought-Iron Pipe—Pittsburgh, Pa. (base).
Vitrified Pipe—Akron, Ohio.
Signal Materials—Swissvale, Pa.
Poles, Juniper—Maxton, N. C.
Poles, Chestnut—Madison Run, Va.
Cross-Arms—Mondy Point, Va.
Iron Wire—Trenton, N. J.
Copper Wire.—Providence, R. I.
Ballast, Sand—(Local).
Electrical Machinery—Schenectady, N. Y.
Shop Machinery—Various points of manufacture.
Boilers, Babcock and Wilcox—Bayonne, N. J.
Corrugated Iron Pipe—Greensboro, N. C.
Piles—Maxton, Bogue and Cedar Point, N. C.

Distribution of Material.

As stated above, the greater portion of the construction material will be handled from material yards over the tracks as laid. Such materials as sand, cement, broken stone, etc., necessary for delivery prior to the time that track is built, will be hauled by wagon over existing highways. Steam shovels and other equipment, which will be found necessary on the Western Division, will work out from junction points.

Grading.

Clearing and grubbing over the entire line was determined from observation of the character and condition of land adjoining the right-of-way. The grading over Valuation Sections 1 to 10, inclusive, is practically all side borrow and team haul work, the exceptions being over a portion of the Electric Division, where it will be necessary to move material for fills a considerable distance by train haul. This will also be true in the case of some of the branches through the swampy regions where materials from side borrows are not readily available. Between Wilson and Raleigh the material can be excavated most economically with small shovels, the haul to be made in wagons to adjacent fills, the cuts being rather short through this section.

West of Raleigh, Valuation Section 11, the character of the country changes very materially and practically all of the work on the main line will be done by steam shovel with both team and train haul, the material being disposed of in adjacent fills. On Valuation Sections 12 and 14 the grading is very light, being practically all side borrow with a small amount of team haul on Valuation Section 14.

Labor Markets.

The local situation along the Norfolk Southern Railroad is such as to make available only a very small amount of common labor, almost entirely negro. It is, therefore, necessary to secure labor from outside sources. The sources available for this purpose are Norfolk, the labor market for this immediate country, and Baltimore, from which city men can be transported cheaply to points on the Norfolk Southern Railroad.

Period of Construction.

The construction of the entire line is to be completed as of June 30, 1914. To this end it is estimated that the time given to the construction of the various sections will be as follows:

Valuation Section	Date Started	Date Completed
1 to 7, inc.	July 1, 1912	June 30, 1914
8, 10, 11 east of Cape Fear River, and 12	July 1, 1912	June 30, 1914
11 west of Cape Fear River, and 14	July 1, 1912	June 30, 1914

In fixing these dates it is estimated that the water terminals and grading will be started at the earliest date named and that the track laying will follow as closely behind the grading as it is possible to keep it, keeping in mind the economy of handling construction forces. The limiting feature in the Northern Division is the long trestle at Mackeys across Albemarle Sound. It is estimated that the construction of this trestle will consume approximately fifteen months. Material will be delivered by water direct. The grading will be completed and track laid to this trestle by the time trestle is ready for the track. This will leave ample time for the completion of the line into Chocowinity, which will occupy only about four months after crossing Mackeys trestle. The Central Division offers no serious problem and it is estimated that two years will be ample time for its construction. The Western Division will require the maximum time for completion of grading and track laying, as the work is heavy and of a character requiring considerable blasting.

It is assumed that buildings, water and fuel stations, power plants, etc., will be constructed as soon as track is laid for transportation of materials.

The work to be done in the time allotted to each division includes ballasting of the track, which will follow as closely as possible behind the track laying.

Borrow Pits.

The principal borrow pits from which material will be taken are as follows:

Valuation Section 1, fourteen miles east of Norfolk.

Valuation Section 4, Sandy Cross.

Valuation Section 5, Pasquotank River fifty-three miles south of Norfolk, Perquimans River seventy miles south of Norfolk, Mackeys, Plymouth, and between Pinetown and Washington.

Valuation Section 8, Bridgeton.

Valuation Section 10, two miles west of Raleigh.

Valuation Section 12, twenty to twenty-five miles south of Raleigh.

In general the pits mentioned are on property owned by the carrier, although in some cases land is not owned by the carrier, it having been transferred to other parties.

Method of Figuring Pay Quantities.

All quantities of grading are figured on the one-way basis without overhaul, practically all contracts on this carrier from which information was available for pricing purposes being by this method, this including all of the more recent construction done by the Norfolk Southern Railroad, the exception to this rule being the J. G. White & Company contract covering a large section of work east of Raleigh where overhaul was included and in fixing prices this overhaul was given consideration.

To ascertain the amount of material necessary for embankment, embankment quantities were increased ten per cent. to cover shrinkage of materials. No swell was figured for loose or solid rock as practically all classification of this kind lies west of Raleigh, where the excavations could be readily measured, this making it unnecessary to estimate embankment quantities.

Subsidence quantities were obtained by tests or inspections at points where such subsidence occurred and the quantities developed were allowed direct, no percentages being figured.

An agreement was obtained in all cases of hidden quantities. Data on construction covering a considerable period was available from notebooks in possession of the carrier; otherwise tests were made, or agreements arrived at, in some equitable manner.

Ballast was obtained by measurement and was increased by an allowance of ten per cent. to cover shrinkage. Other allowances were made in accordance with Director's memoranda covering loss and wastage as follows:

Track Spikes	3 per cent.
Track Bolts	1 per cent.
Nut Locks	2 per cent.
Angle Bars	2 per cent.
Piles, not exceeding three feet (cut-off).	

III. REPRODUCTION COSTS.

Grading.

Reproduction prices for clearing and grubbing were established as a result of the study of contract prices paid on the Norfolk Southern Railroad and affiliated lines, together with those paid by railroads of the same character in adjacent territory.

The timber to be removed is very largely Virginia and North Carolina pine, generally of small size. Over most of the eastern branch lines and portions of the main line, as far west as Wilson, the timber stretches are grown up to rather heavy underbrush, with a great deal of young pine growth coming on. West of Wilson the land is very generally cleared, the clearing yet to be done being in short stretches and of oak, pine and mixed woods.

On the Norfolk Southern Railroad considerable construction work has been done within the past decade and the grading prices used are the result of a careful study of the records of the carrier showing amounts paid for the character of work under consideration, together with a study of contract prices on railroads of similar character in adjacent territory. It was assumed that all grading, including station grounds, highway crossings, etc., would be done under the same general contract.

On certain branch lines it is found necessary to construct corduroy mattresses and through these portions of the country plenty of small timber will be found which must, of necessity, be cleared from the right-of-way. It is assumed, therefore, that contractor will place this timber and construct the embankment thereon at the contract price for grading.

In general, the character of excavation on any particular section is similar, although on some sections conditions on the ground are such as would permit two or more prices to be applied. In all cases the price used on any particular section is the weighted average for that section.

Bridges, Trestles and Culverts.

The price applied to cast-iron pipe culverts was obtained by a study of contract prices on the Norfolk Southern Railroad, together with those paid by several similar roads in adjacent territory. These figures were checked by taking the information furnished by the Central Cost Bureau from which a base price was established. It was assumed that pipe would be bought at Roanoke, Va., f. o. b. cars at that point. To this price was added freight to delivery point. A price of fifty cents per ton was allowed for unloading, storing and handling. It is figured that culvert pipe will be moved from storage yards by construction train direct to immediate vicinity of point of installation. To the prices above noted is added a labor charge for placing, based on amounts paid by the Norfolk Southern Railroad Company and other companies for similar construction.

The reproduction prices for corrugated pipe culverts were developed from prices paid by the Norfolk Southern Railroad Company in the construction of those portions of the line west of Raleigh, the base price being f. o. b. cars at Greensboro, N. C., where this material is manufactured, to which was added freight and other items, as in the case of cast-iron pipe. The reproduction prices for timber culverts were established in the same manner, except that it was assumed material would be purchased by the contractor at the most accessible point.

The base prices for trestle timber and piles were obtained from data furnished by the Central Cost Bureau. The price includes timber delivered f. o. b. cars, junction point, cost of work train service to site of installation, labor, framing, erecting and wastage. The price thus built up was found to check very closely with the average figure obtained from a study of several contracts for recent construction on the Norfolk Southern Railroad and the Atlantic Coast Line Railroad.

The material for all large trestles crossing the estuaries along the Atlantic sea coast will be delivered directly at the site by boat.

Data received from the Central Cost Bureau and comparison of figures paid by carrier on recent construction support the price used for treated piles.

The prices for metal bridges are built up on a base price for raw material of $1.35 per hundred pounds, this price being derived from a chart showing fluctuations of market and normal prices from 1903 to 1915. To this was added cost of fabrication, which includes all shop costs from raw material at the mill to fabricated material f. o. b. cars at Pittsburgh, and which is derived from a composite average of the differences between a number of actual contract prices extending over the same period of years covered by chart and the actual base prices at the date of contract. Freight was based on data furnished by the Central Coast Bureau. Work train service from junction point with Norfolk Southern Railroad

is estimated on an average haul of twenty miles. Handling from cars and cost of erection is arrived at by an inspection and comparison of actual contract prices on the Norfolk Southern and similar roads.

Bridge Masonry, Stone and Concrete.

Prices for bridge masonry, stone and concrete were based on the contract prices paid for this class of work on numerous contracts on the Norfolk Southern Railroad and other roads in this territory. In the same manner the reproduction prices of riprap and similar items were obtained.

Ties.

Tie renewal records with prices paid by the Norfolk Southern Railroad Company were available for a period covering six years prior to June 30, 1914. These prices were tabulated and the trend of prices worked up and a composite normal base price for all classes of ties secured, to which was added freight in the case of ties that could not be secured locally. The price thus secured includes inspection at one cent per tie and a cost for handling at yards of two cents per tie. In the case of treated ties the cost of treatment by contract was secured from the records of the carrier for ties treated in 1909 and 1911. The cost of treatment in 1909 was forty-seven cents and in 1911, forty cents, and since it is a well-known fact that cost of tie treatment is decreasing the lower figure was used.

To the original cost of tie and cost of treatment was added cost of unloading and handling at treating plant of one and one-half cent per tie.

The cost of switch, bridge and crossing timber was obtained from a study of the carrier's records covering purchases of this class of materials for six years preceding June 30, 1914, to which was added the cost of unloading and storing at the rate of fifty cents per thousand feet, and an inspection cost of fifteen cents per thousand feet board-measure.

The reproduction cost of new rail, f. o. b. cars Sparrow's Point and Steelton, was furnished by the Central Cost Bureau. To this price was added five cents per ton for inspection, freight rates to the delivery points on the Norfolk Southern Railroad and fifty cents per ton for handling at material yards, from which points work train service was estimated to point of delivery.

The base price for relay rail was established from the book record price of the Norfolk Southern Railroad, together with a study of similar prices on carriers in the same territory.

Other Track Material.

The base price for other track material, including frogs and switches, was arrived at from a compilation of data furnished by the Central Cost Bureau. To this price was added freight to delivery point and cost of unloading and storing at material yards.

Ballast.

The sand and gravel ballast used on the Norfolk Southern Railroad was generally obtained from nearby cuts and the reproduction cost is based on the records of the Norfolk Southern Railroad covering cost of loosening and loading work-train service and unloading.

The cost of cinder ballast was based on the theory that any cinders used would have to be bought and the price assumed was $5.00 per car, which is the common price shown in the records of this and similar carriers for cinders purchased. This gave a base figure of approximately seventeen cents per cubic yard, to which was added the cost of hauling and unloading.

Track Laying and Surfacing.

In order to show a base price for track laying and surfacing, such data as was obtainable from contracts on adjacent carriers for this class of work was secured and comparison made with a built-up price, which includes loading and distributing material, laying track, giving track initial surface, work-train service, and such overhead charges as would be necessary in the case of the first three named items. The cost of installing turnouts, crossings, etc., was established in the same manner.

The price for ballasting is based on the records of the Norfolk Southern Railroad. Inasmuch as this work is generally done by carrier's force, it is assumed that in the reproduction all track laying and surfacing, including ballasting, will be done by this method.

Right-of-Way Fences.

The reproduction prices were based upon data furnished by the Central Cost Bureau, to which freight to destination and a contract price of fifty cents per rod for posts, handling and installation, were added. The installation cost was obtained from the records of the Norfolk Southern Railroad and other carriers.

Crossings and Signs.

The unit cost applied to railroad crossings was based on the records of the Norfolk Southern Railroad. The weights and cost of about one-third of all crossing frogs was available and, from these figures, common prices were worked up for several different types and these prices applied to those frogs where no information as to price was available. The prices thus established include all expense, such as freight, handling, etc.

The price for signs was a built-up price, estimating the cost of material and labor used in the construction of such signs. No data was available from carrier's records.

Buildings.

Inspection in the field and an examination of the plans and inventory notes of the carrier's buildings developed the fact that there were certain classes of buildings which could be typed at a uniform price per cubic foot. Contracts for 119 buildings were examined, including seventy passenger and freight stations combined, seven passenger stations of special design, five freight stations of special design, two enginehouses, five coaling stations, fifteen section houses, ten section dwellings and five outbuildings. The prices thus obtained were made normal as of June 30, 1914, by a study of the trend of prices for material and labor, and reduced to a price per cubic foot and this price used for all buildings which could be reasonably included in the same type.

For many small structures, such as freight platforms, sheds, etc., information was gathered from the carrier's record which permitted such structures to be priced by making bill of material and applying carrier's record prices per F. B. M.

The cubic contents of a building were taken from the top of the first floor construction, in the case of buildings without basement, and from basement floor in case of basement buildings, and the average height of roof multiplied by area of ground floor. All foundation work, plumbing, heating, lighting, etc., were included in cost of building.

Water Stations.

Reproduction cost of water stations was based on data furnished by the Central Cost Bureau, to which were added freight to point of delivery and cost of installation, the last named being estimated according to good practice from such data as was available from carrier's record.

Fuel Stations.

Fuel stations on the Norfolk Southern Railroad are of two general types:

1. Frame trestle type,
2. Mechanical (link belt) type.

Reproduction costs for the first type were obtained in the same manner as in the case of timber trestles, work-train service being considered from connecting point with Norfolk Southern to site of erection.

Reproduction costs of the second type were based on the records of the Norfolk Southern Railroad. Original costs of practically all these stations were a matter of record with the carrier. These costs were made normal as of June 30, 1914, and a price per cubic foot figured and applied in the case of those plants where the carrier did not have record.

Wharves and Docks.

The reproduction cost of the structural portion of wharves and docks was established in the same manner as in the case of pile trestles. All material is assumed to be delivered at point of erection by water.

The cost of dredging was established from records of contract prices paid by the Norfolk Southern Railroad for this class of work.

Telegraph and Telephone Lines.

Reproduction costs were built up from material price data furnished by the Central Cost Bureau and from cost records of the carrier, to which was added cost of installation, as shown from records of the Norfolk Southern Railroad and adjacent carriers.

Signals and Interlockers.

Prices for materials were established from information furnished by the Central Cost Bureau, together with information obtained from carrier's records. Data as to rates of pay for skilled signal mechanics and ordinary laborers was also obtained from the Central Cost Bureau. The time period for construction was estimated according to good practice and the cost of labor thus developed added to the cost of material, which includes freight and handling at point of delivery.

Power Transmission and Distribution Systems and Power Line Poles and Fixtures.

Cost of material was fixed from data furnished by the Central Cost Bureau and installation cost based on records of the Norfolk Southern Railroad and other carriers.

Roadway Machines.

Reproduction cost is based upon unit prices, received from the Central Cost Bureau, and includes price f. o. b. point of manufacture and freight rates to delivery points on the Norfolk Southern Railroad.

Roadway Small Tools.

Roadway small tools were listed by the Norfolk Southern Railroad Company and original cost figures furnished by them. These lists were checked by Government field forces. Prices were compared with Central Cost Bureau compilations based on returns from Valuation Order No. 14, and were generally found satisfactory.

Tools are set up and priced by valuation section.

Shop Machinery.

Reproduction cost of shop machinery is based on original cost information secured from Norfolk Southern Railroad Company's invoices and accounts. This information was made normal as of June 30, 1914, by means of the table worked up by the Western District Mechanical Engineer showing fluctuation in prices and normal cost of machines, tools, etc., based on market prices for ten years prior to June 30, 1914. To these prices were added freight from point of manufacture to point of delivery, and cost of installation, which was estimated according to common practice.

In some cases where records were not available, builders' catalogue price was obtained and by comparison with prices for like types, obtained from carrier's records, normal prices were developed and used.

Steam Locomotives.

The reproduction prices for steam locomotives were obtained by using the original cost data of locomotives obtained from carrier's records and from the records of manufacturers covering the particular locomotives priced. These prices were brought to normal as of June 30, 1914, by using a diagram developed from a similar diagram furnished by the Baldwin Locomotive Works, the diagram used extending over a longer period than that furnished by the Baldwin people and being applicable to the several types on the Norfolk Southern Railroad. To this cost was added the cost of specialties, freight, etc.

Passenger and Freight Train Cars and Work Equipment.

To obtain reproduction cost of passenger and freight train equipment for steam lines prices were obtained for each type of car used by the Norfolk Southern Railroad from the American Car and Foundry Company, these prices being for the year 1914. A study was also made of the prices paid by several large eastern railroads for the same kind of equipment during the ten years ending June 30, 1914. These studies developed the fact that there was little fluctuation in prices during the above-named period.

A comparison was made with the prices actually paid by the Norfolk Southern Railroad so far as purchase price was known. This covered about seventy-seven per cent. of all freight cars and fifty per cent. of passenger cars.

To obtain reproduction cost of equipment used on the Electric Division, the actual prices paid by the Norfolk Southern Railroad, so far as available, were compared with prices paid for similar equipment on similar electric railways in New England, and a price per foot of length was developed and assigned to each type of car. A special weight was given to price data covering more recent purchases of equipment in order to obtain a normal price as of 1914.

Work Equipment.

To obtain fair reproduction cost of cars used in construction service it was assumed that when a car was taken out of freight or passenger service and put into work service it became a second-hand car and reproduction price would be second-hand cost, and from careful inspection it was assumed that freight cars used as work cars would be estimated at fifty per cent. of the cost new of similar cars used in freight service, and passenger cars would be priced at ten per cent. of their cost new for passenger service. This is believed to represent the average service value remaining when such cars were removed to work-train service. To the base prices thus established were added an amount sufficient to cover additional facilities such as bunks, shelving, windows, etc.

Motor Equipment of Cars.

The reproduction cost of such equipment was based on the record of prices paid by the Norfolk Southern Railroad for such equipment and on similar records from electric railways in New England. From the data thus obtained an empirical formula was derived for calculating the price per horse-power for motors and for control equipments, this formula covering a period for two or three years ending June 30, 1914.

Floating Equipment.

Reproduction cost of floating equipment was developed from information obtained from carrier's records, the price used being the original cost which is taken as normal for date of valuation.

Engineering.

The reproduction cost of engineering was developed in accordance with the rule laid down by the Engineering Board, the percentage established being the result of study of the construction records of portions of the Norfolk Southern Railroad, Winston-Salem Southbound Railway, and similar carriers. As a result of this study it was found that four (4%) per cent. seemed to be a fair percentage to be used, and this was applied to accounts 3 to 46, inclusive (excluding accounts 39, 40, 41 and 42).

General Expenditures.

A percentage of all accounts from 1 to 58, both inclusive (excepting accounts 2, 39, 40, 41, 42 and 47), was developed to apply to accounts 71 to 77, inclusive (excepting account 76). This percentage was based on data obtained from a study of the records of the Winston-Salem Southbound Railway, which were very complete and from which reliable data could be obtained. This study established a figure of one and two-tenths (1.2%) per cent. as a proper allowance to be made covering the accounts named.

Account 76—Interest During Construction.

Interest on the money necessary for construction was figured at the rate of six (6%) per cent. on all accounts from 1 to 77, inclusive (except accounts 2, 39, 40, 41 and 42).

Interest on accounts 1 to 47, inclusive (excepting accounts 2, 39, 40, 41, 42 and 47), was figured at six (6%) per cent. for one year or one-half the construction period.

Interest on equipment accounts 51 to 58, inclusive, was figured at six (6%) per cent. for a period of three months.

Interest on general expenditure accounts from 71 to 77, inclusive (excluding account 76), was figured at six (6%) per cent. for one year.

IV. DEPRECIATION.

Depreciation is estimated in accordance with memorandum of the Engineering Board, dated November 6, 1915. Total service life allowed is the maximum given in that memorandum, modified in accordance with conditions observed at time of field inspection. In some cases it was found necessary to depart from the instructions contained in Memorandum No. 226. Such variations are indicated below:

Bridges, Trestles and Culverts.

This account was depreciated in accordance with Memorandum No. 226. Scrap value of $10.00 per ton was allowed in the case of metal bridges.

Ties.

Average annual tie renewals were such on the Norfolk Southern Railroad as to permit the application of a fifty per cent. service condition.

Rail.

An investigation of the records of the Norfolk Southern Railroad and similar carriers showed that the life of rail between new and relay varied from seven to thirty years; the composite average life in such service was therefore assumed at sixteen years, and new rail was depreciated using the above as a basis.

In the same manner relay rail was found to have a service life varying from five to twenty-eight years and an average life was established of nineteen years, on which depreciation was based.

Other Track Material.

Property in this account was depreciated in accordance with Memorandum No. 226. Average service life was established from a study of the records of the Norfolk Southern Railroad and carriers having similar traffic conditions.

Track Laying and Surfacing.

This account was depreciated in accordance with Engineering Board's Memorandum No. 294.

Buildings.

Buildings were depreciated in accordance with Memorandum No. 226, using the maximum service life as indicated as a base and modifying the same as a result of observation in the field.

Wharves and Docks.

The structures in connection with wharves and docks were depreciated in the same manner as bridges and other structures. Dredging in connection with this account was assumed to be 100 per cent. condition—the quantities reproduced being result of actual measurements at time of inventory.

Shop Machinery and Tools.

This account was depreciated in accordance with the instructions given in Memorandum No. 226, scrap being allowed at the net rate of eight dollars per ton for machines, no scrap being allowed for small tools.

Rolling Equipment.

Locomotives, passenger and freight train cars, work equipment, etc., were depreciated in accordance with observed conditions in the field. Net scrap allowances were made at the rate of ten dollars per ton for locomotives and a scrap value on freight cars amounting to ten per cent. of value new, based on record of Massachusetts State Railroad Commission, covering approximately 36,000 cars on the New York, New Haven & Hartford Railroad, and on passenger cars four per cent. of value new, based on pound price, produced from records of carrier's scrap report.

General Expenditure Accounts.

These accounts were not depreciated.

APPENDIX A.

Account 716.

The property contained under account 716 was listed by the Norfolk Southern Railroad Company and the prices applied are the cost new applied by the carrier. Complete lists of this property are on file with the Commission. This list shows property in this account amounting to $101,996. Sufficient inspection was made by Government representatives to permit the assumption that list is substantially correct. Condition per cent. was established at 100. In accordance with instruction, this amount has not been carried into Cost of Reproduction New or Cost of Reproduction Less Depreciation.

APPENDIX B.

Assessments for Public Improvements.

No information was furnished by the carrier covering this account and the same, therefore, has not been included in report.

APPENDIX C.

Patterns.

Director's Memorandum No. 394, covering the subject of patterns, was received after all accounts containing this item had been set up. The cost of all patterns, therefore, is included with the machines to which they belong, as follows:

	Cost of Reproduction New	Service Condition	Cost of Reproduction Less Depreciation
Account 18	$165	100	$165
Account 45	74	60	45
Accounts 51 to 57, inclusive	4132	75	3099
Total	$4371		$3309

APPENDIX D.

Crossings.

At Hallison, N. C., the Norfolk Southern Railroad is crossed by the Randolph & Cumberland Railroad and we have been furnished with copy of agreement which shows that this crossing was installed and is maintained at the expense of the Randolph & Cumberland Railroad Company.

The Norfolk Southern Railroad Company claims ownership in this crossing due to the fact that some years ago when weight of rail was changed on the Norfolk Southern Railroad the Randolph and Cumberland people declined to renew the crossing with heavier rail. This claim is disputed by the Randolph and Cumberland people, and inasmuch as agreement would indicate ownership in the last-named company, we have omitted this crossing from inventory of Norfolk Southern Railroad.

ATLANTIC & NORTH CAROLINA RAILROAD COMPANY

LEASED TO

NORFOLK SOUTHERN RAILROAD COMPANY

ATLANTIC & NORTH CAROLINA RAILROAD COMPANY.

The Atlantic & North Carolina Railroad Company was chartered under the laws of North Carolina in perpetuity December 27, 1852.

On September 1, 1904, the property and franchises of this company were leased for a period of ninety-one years and four months to the Howland Improvement Company. The name of this last-named company was changed September 15, 1905, by legislative enactment to that of Atlantic & North Carolina Company, and on November 26, 1906, the property of the Atlantic & North Carolina Company was by deed conveyed to the Norfolk & Southern Railway Company, together with its lease of the Atlantic & North Carolina Railroad Company.

This road extends from Goldsboro, N. C., to Morehead City, a distance of 95.9 miles. The major portion of its line lies on the coastal plain extending from the Atlantic coast westward and traverses for a considerable portion of the distance a swampy region peculiar to the low-lying sections along the Atlantic coast. Over a very considerable part of the line clearing and grubbing will be required as there yet remains a great deal of unimproved territory. The character of grading is very similar to that in the coastal plain region of the Norfolk Southern Railroad and averages only about 10,000 cubic yards per mile, the major portion being done by side borrow.

The trackage of this company is as follows:

Val. Sec.	From	To	Miles 1st Main Track	Miles Sidings and Yard Tracks	Total Miles all Tracks
9	Goldsboro	Morehead City	95.909	20.304	116.213

Grading.

Reproduction prices were established by the same method as were those used on that portion of the Norfolk Southern Railroad lying east of Wilson, N. C.

Other Accounts.

The pricing and depreciation methods on all other accounts are the same as those used on the Norfolk Southern Railroad.

It is assumed that the construction of this property will be commenced January 1, 1913, and be completed July 1, 1914.

APPENDIX A.

Patterns.

The same condition in the case of the Atlantic & North Carolina Railroad applies as in the case of the Norfolk Southern Railroad. The cost of all patterns included with machines to which they belong is as follows:

	Cost of Reproduction New	Service Condition Per Cent.	Cost of Reproduction Less Depreciation
Account 18	$110	100	$110
Mechanical Accounts 51 to 57, inclusive	2571	75	1928
Total	$2681		$2038

CARTHAGE & PINEHURST RAILROAD
COMPANY

OPERATED BY

NORFOLK SOUTHERN RAILROAD
COMPANY

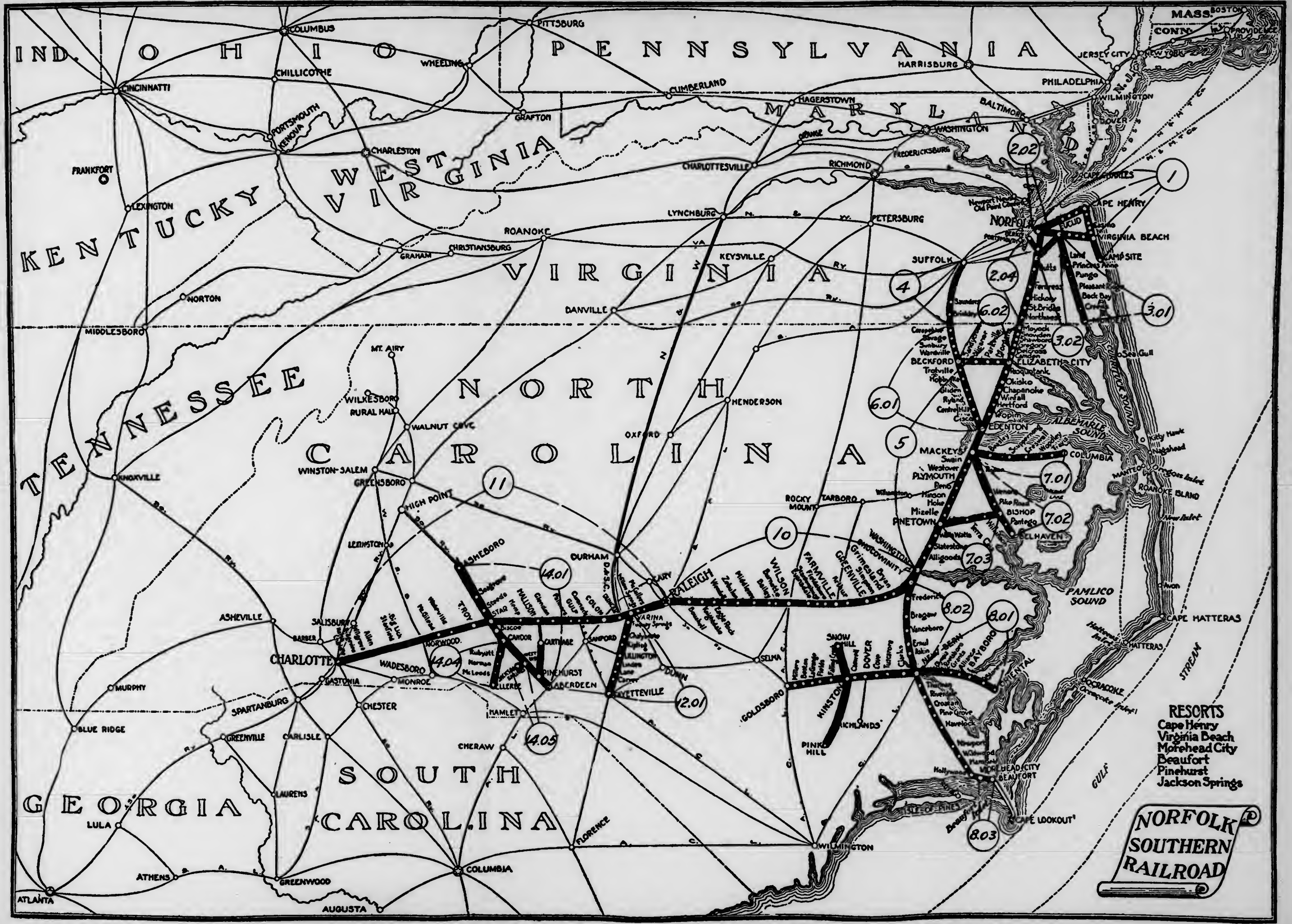
CARTHAGE & PINEHURST RAILROAD COMPANY.

The Carthage & Pinehurst Railroad Company was incorporated in North Carolina July 7, 1906, for ninety-nine years. On October 23, 1909, the property, railroad and franchises were leased to the Aberdeen & Asheboro Railroad Company for five years to date from October 1, 1907. Although this lease expired in 1912 and was not renewed, the Norfolk Southern Railroad Company as the successor of the Aberdeen & Asheboro Railroad Company continues to operate the property under the terms of the expired lease.

This railroad traverses a pinewood section from which the merchantable timber has been cut. The soil is generally sandy, and practically none of the land adjacent to the railroad is under cultivation. The country is thinly settled, and as a result of these conditions the traffic is exceedingly light. The grading is very light with the exception of one summit cut containing approximately 31,500 cubic yards, the grading for the entire length of the line averaging less than 10,000 cubic yards per mile. The haul of grading material is generally short with the exception of the summit cut above referred to. The grades are undulating, maximum grade in each direction being 2.5 per cent. No large streams are crossed. The track is laid with forty-pound rail (relay), surfaced with selected local material. The total mileage is as follows:

Val. Sec.	From	To	Miles 1st Main Track	Miles Sidings and Yard Tracks	Total Miles all Tracks
15	Carthage............	Pinehurst.............................	11.94	0.60	12.54

Pricing and depreciation methods for all accounts are the same as those used on the Norfolk Southern Railroad. It is assumed that the construction of this property will be commenced January 1, 1914, and be completed July 1, 1914.


NORFOLK SOUTHERN RAILROAD
RESORTS
Cape Henry
Virginia Beach
Morehead City
Beaufort
Pinehurst
Jackson Springs
IND.
OHIO
PENNSYLVANIA
MASS.
CONN.
N.J.
MARYLAND
WEST VIRGINIA
KENTUCKY
VIRGINIA
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
COLUMBUS
PITTSBURG
WHEELING
CHILLICOTHE
CINCINNATI
PORTSMOUTH
KENOVA
GRAFTON
CUMBERLAND
HAGERSTOWN
HARRISBURG
JERSEY CITY
NEW YORK
BOSTON
PROVIDENCE
PHILADELPHIA
WILMINGTON
BALTIMORE
DOVER
WASHINGTON
FREDERICKSBURG
CHARLESTON
FRANKFORT
LEXINGTON
CHARLOTTESVILLE
RICHMOND
CAPE CHARLES
CAPE HENRY
NORFOLK
VIRGINIA BEACH
CAMP SITE
LYNCHBURG
PETERSBURG
ROANOKE
GRAHAM
CHRISTIANSBURG
KEYSVILLE
SUFFOLK
NORTON
DANVILLE
MIDDLESBORO
ELIZABETH CITY
BECKFORD
EDENTON
ALBEMARLE SOUND
CURRITUCK SOUND
Kitty Hawk
Nagshead
COLUMBIA
MANTEO
ROANOKE ISLAND
MACKEYS
PLYMOUTH
PINETOWN
BISHOP
BELHAVEN
WASHINGTON
PAMLICO SOUND
CAPE HATTERAS
HATTERAS
OCRACOKE
MT. AIRY
WILKESBORO
RURAL HALL
WALNUT COVE
WINSTON-SALEM
GREENSBORO
HIGH POINT
LEXINGTON
HENDERSON
OXFORD
ROCKY MOUNT
TARBORO
DURHAM
CARY
RALEIGH
WILSON
FARMVILLE
GREENVILLE
ASHEBORO
TROY
STAR
MALLISON
CANDOR
NORWOOD
CARTHAGE
PINEHURST
ABERDEEN
SANFORD
VARINA
FAYETTEVILLE
DUNN
SELMA
GOLDSBORO
SNOW HILL
DOVER
KINSTON
NEW BERN
BAYBORO
ORIENTAL
PINK HILL
RICHLANDS
MOREHEAD CITY
BEAUFORT
CAPE LOOKOUT
ASHEVILLE
SALISBURY
CHARLOTTE
WADESBORO
MONROE
GASTONIA
KNOXVILLE
MURPHY
SPARTANBURG
CHESTER
HAMLET
CHERAW
BLUE RIDGE
GREENVILLE
CARLISLE
LAURENS
LULA
ATHENS
GREENWOOD
COLUMBIA
FLORENCE
WILMINGTON
AUGUSTA
ATLANTA
GULF STREAM
1
2.02
2.04
3.01
3.02
4
5
6.01
6.02
7.01
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TITLE